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10/593,294	01/03/2007	Osamu Sakurada	296512US0PCT	8434

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
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ALEXANDRIA, VA 22314

EXAMINER

AHVAZI, BIJAN

ART UNIT	PAPER NUMBER
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1796

NOTIFICATION DATE	DELIVERY MODE
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08/10/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/593,294	Applicant(s) SAKURADA ET AL.	
	Examiner BIJAN AHVAZI	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-18 is/are pending in the application.
- 4a) Of the above claim(s) 7, 13-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,8-12,17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This action is responsive to the amendment filed on June 03, 2010.
2. Claims 1-4, 6, 8-12, 17-18 are pending. Claims 1, 6, 9 are amended. Claim 5 is cancelled. Claims 7, 13-16 are withdrawn to a non-elected invention from further consideration.
3. The rejection of claims 1-6, 8-12, 17-18 in the last Office action is withdrawn in view of Applicants' amendment.

Claim Objections

4. Claim 1 is objected to because of the following informalities: It is suggested that "for dispersing of a particle" (all occurrences) in preamble of dependent claims be deleted or "for dispersing of a particle)" in preamble of claim 1 be inserted in its stead so as to engender claim language clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi *et al.* (Pub. No. US 2002/0000532 A1) in view of Russell *et al.* (Pat. No. US 2,926,183).

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Regarding claims 1-2 and 6, Takahashi *et al.* teach a composition for dispersing of a particle, characterized in being obtained by mixing a metal alkoxide (Page 1, ¶0011) containing a metal element having +3 to 5 valence (Page 1, ¶0011), an organic acid (Page 1, ¶0012) and water (Page 1, ¶0011), wherein the composition for dispersing of a particle is obtained by mixing a hydrolysate derived from said metal alkoxide (Page 2, ¶0020), and said organic acid, and which is a transparent aqueous solution (Page 3, ¶0036, Example 1, Table 1). Takahashi *et al.* do not expressly teach the composition for dispersing of a particle wherein said organic acid is at least one type selected from the group consisting of lactic acid, oxalic acid, citric acid and tartaric acid and wherein the mixing proportion of said organic acid and said metal alkoxide (organic acid: metal alkoxide), is (0.5 - 4): 1 by molar ratio.

However, Russell *et al.* teach a stable water soluble organic complexes of titanium lactate complex (Col. 1, lines 15-18, Col. 3, line 60), wherein the mole ratio of titanium to lactic acid is substantially 1:1 (Col. 5, lines 1-2) or between 1:1 and 1:2 can also be employed (Col. 5, lines 4).

At time of invention, it would have been obvious to one of ordinary skill in the art to modify the composition for dispersing of a particle by Takahashi *et al.* so as to include an organic acid such as lactic acid (interchangeable for an organic acid of Takahashi *et al.*) as taught by Russell *et al.* with reasonable expectation that this would result in providing a desirable production of titanium lactate complex which would be stable in aqueous solution of at a pH as high as 8.0 or 9.0 as taught by Russell *et al.* (Col. 1, lines 65-67) since such complexes are unstable on the alkaline side.

Claims 1-2 are viewed as product-by-process claims and hence the methods they are created by are not pertinent, unless applicant can show a different product is produced. Even though product-by-process claims are limited by and defined by the process, determination of

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patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” See MPEP 2113.

Regarding claims 3-4, Takahashi *et al.* disclose the composition for dispersing of a particle, wherein said metal element is aluminum or titanium (Page 1, ¶0011) containing a metal element having +3 to 5 valence (Page 1, ¶0011, Page 2, ¶0020).

7. Claims 8-12, 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi *et al.* (Pub. No. US 2002/0000532 A1), Russell *et al.* (Pat. No. US 2,926,183) as applied to claim 1 above, and further in view of Arney *et al.* (Pat. No. US 6,432,526 B1).

Regarding claims 8-10, 12, Takahashi *et al.* and Russell *et al.* teach the features as discussed above. Takahashi *et al.* and Russell *et al.* do not expressly teach a composition having a particle dispersed therein, characterized in comprising a particle and said composition for dispersing of a particle, wherein said particle is an oxide particle and the content of said particles is 60 % by volume or less, which is used in an application for ceramic material, photocatalytic material, optical material or electronic material.

However, Arney *et al.* teach colloids composition (i.e. creamer composition) including the metal oxide particles such as titanium-based particles (Col. 2, lines 47-48) having dispersing aid attached thereto dispersed in an organic liquid (Col. 2, lines 58-60), wherein said particle is an oxide particle and the content of said particles 60 % by volume or less (i.e. 34%) as shown in

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Table 1 (Col. 24, lines 24-45) which is used in an application for lenses, sheets, fibers, prisms, computer screens, and CRT face plates (Col. 28, lines 15-17).

At time of invention, it would have been obvious to one of ordinary skill in the art to modify the composition for dispersing of a particle by Takahashi *et al.* with an organic acid such as lactic acid (interchangeable for an organic acid of Takahashi *et al.*) by Russell *et al.* so as to include a composition having a particle dispersed as taught by Arney *et al.* with reasonable expectation that this would result in desirable transparent polymer/metal oxide compositions having high refractive indexes, since it is difficult to obtain the metal oxide particles when combined with polymer precursors, can agglomerate and decrease the transparency of the resulting ceramers as taught by Arney *et al.* (Col. 2, lines 1-5).

Regarding claim 11, Takahashi *et al.* and Arney *et al.* teach the features as discussed above. Takahashi *et al.* and Arney *et al.* do not expressly teach a composition having a particle dispersed therein, wherein pH is in the range from 2 to 11.

However, Russell *et al.* teach a stable water soluble organic complexes of titanium lactate complex (Col. 1, lines 15-18, Col. 3, line 60), wherein the mole ratio of titanium to lactic acid is substantially 1:1 (Col. 5, lines 1-2) or between 1:1 and 1:2 can also be employed (Col. 5, lines 4), wherein pH is in the range from 1 to 9 (Col. 3, lines 4-8).

At time of invention, it would have been obvious to one of ordinary skill in the art to modify the composition for dispersing of a particle by Takahashi *et al.* and a composition having a particle dispersed by Arney *et al.* so as to include a composition having a particle dispersed therein, wherein pH is in the range from 1 to 9 as taught by Russell *et al.* with reasonable expectation that this would result in providing a desirable production of titanium lactate complex

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which would be stable in aqueous solution of at a pH as high as 8.0 or 9.0 as taught by Russell *et al.* (Col. 1, lines 65-67) since such complexes are unstable on the alkaline side.

Regarding claims 17-18, Takahashi *et al.* and Russell *et al.* teach the features as discussed above. Additionally, Takahashi *et al.* teach a process for producing a titanium-containing aqueous solution, comprising reacting a titanium alkoxide with water in the presence of at least one of ammonia, amines and a carboxylic acid is used in combination (i.e. a mixing step for mixing, Page 5, Claim 1, lines 1-8), wherein titanium ion in water exists usually in the form of an aqua-complex with the amine function not as a ligand bonding to titanium but as a base, and they form alkylammonium cations and hydroxide anions (i.e. adjusting the composition depending on isoelectric point particles in a mixing step, Page 2, ¶0020). Takahashi *et al.* and Russell *et al.* do not expressly teach a process for producing a composition having a particle dispersed.

However, Arney *et al.* teach a process of making dispersible crystalline metal oxide nanoparticles (Col. 3, lines 1-2, Col. 5, lines 48-60, Col. 26, lines 32-33). At time of invention, it would have been obvious to one of ordinary skill in the art to modify the composition for dispersing of a particle by Takahashi *et al.* with an organic acid such as lactic acid (interchangeable for an organic acid of Takahashi *et al.*) by Russell *et al.* so as to include a process for producing a composition having a particle dispersed, wherein the process comprises a mixing step a particle and a solvent, and that the amount of said composition to be mixed is adjusted depending on the isoelectric point of said particle in said mixing step, wherein said solvent is water as taught by Arney *et al.* with reasonable expectation that this would result in desirable transparent polymer/metal oxide compositions having high refractive indexes, since it is difficult to obtain the metal oxide particles when combined with polymer

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precursors, can agglomerate and decrease the transparency of the resulting ceramers as taught by Arney *et al.* (Col. 2, lines 1-5).

Response to Arguments

8. Applicant's arguments with respect to claims 1-4, 6, 8-12, 17-18 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's arguments against the references individually (i.e. Takahashi *et al.* and Russell *et al.*), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that there is no teaching, suggestion, or motivation to combine the references, the examiner recognizes that obviousness may be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), and *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007). In this case, Takahashi *et al.* teach the features as discussed above. Takahashi *et al.* do not expressly teach the composition for dispersing of a particle wherein said organic acid is at least one type selected from the group consisting of lactic acid, oxalic acid, citric acid and

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tartaric acid and wherein the mixing proportion of said organic acid and said metal alkoxide (organic acid: metal alkoxide), is (0.5 - 4): 1 by molar ratio.

However, Russell *et al.* teach a stable water soluble organic complexes of titanium lactate complex (Col. 1, lines 15-18, Col. 3, line 60) , wherein the mole ratio of titanium to lactic acid is substantially 1:1 (Col. 5, lines 1-2) or between 1:1 and 1:2 can also be employed (Col. 5, lines 4). At time of invention, it would have been obvious to one of ordinary skill in the art to modify the composition for dispersing of a particle by Takahashi *et al.* so as to include an organic acid such as lactic acid (interchangeable for an organic acid of Takahashi *et al.*) as taught by Russell *et al.* with reasonable expectation that this would result in providing a desirable production of titanium lactate complex which would be stable in aqueous solution of at a pH as high as 8.0 or 9.0 as taught by Russell *et al.* (Col. 1, lines 65-67) since such complexes are unstable on the alkaline side.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e. functional/ chemical natures of the references such as high/low acid concentration) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir.1993). Claims 1-2 are viewed as product claims and hence the methods they are created by are not pertinent, unless applicant can show a different product is produced. Even though product claims similar to product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process or product claim is the same as or obvious from a product of the prior art,

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the claim is unpatentable even though the prior product was made by a different process.” See MPEP 2113. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

In response to applicant's argument that Takahashi *et al.* and Russell *et al.* references are not combinable.

The Examiner respectfully disagrees. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Examiner Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bijan Ahvazi, Ph.D. whose telephone number is (571)270-3449. The examiner can normally be reached on M-F 8:0-5:0. (Off every other Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Y. Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BA/
Bijan Ahvazi,
Examiner
Art Unit 1796

/Harold Y Pyon/
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08/01/2010